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Luzula stenophylla - A new species in the Iranian flora

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Abstract: A summary of taxonomy, nomenclature, relationships and distribution of *Luzula* (sect. *Luzula*) *stenophylla* Steud. is given. A considerable range extension represented by two new localities of *Luzula stenophylla* Iran is briefly discussed. The two localities (a new species record in Iran) are found in the Sabalan Mtns, Ardabil Province, and Mt. Khash-e Chal in the Elburz Range, Mazandaran Province.

Keywords: *Luzula*, taxonomy, Iran.

Introduction

Historical

It was KRECZETOVICZ (1927) who first revised older records of *Luzula sudetica* (WILLD.) SCHULT. from the Caucasus, and recognized the Caucasian plants as a separate taxon (as *L. multiflora* subsp. *pseudosudetica* V.I.KRECZ. In a very brief protologue, he did not designate any type, and a neotype was published for the name by KIRSCHNER (1990), a plant from the Tschra-Tscharo Pass in the Bakuriani region, the Small Caucasus. A few years later, KRECZETOVICZ & GONCHAROV (1935) published a new name, *L. pseudosudetica* V.I.KRECZ for this taxon. The rather unusual nomenclatural problem of the relationships among the names *L. pseudosudetica, L. angustifolia* C.KOCH and *L. stenophylla* STEUD. was discussed in KIRSCHNER (1990); here we limit ourselves to the statement that the

name *L. pseudosudetica* was published as a substitute (*nomen novum*) for the name *L. angustifolia* C.KOCH, a later homonym. However, another, much earlier nomen novum for the same name was published by STEUDEL (see nomenclatural summary below).

Relationships

Taxonomy of mountain taxa of the section *Luzula*, mostly characterized by dark, congested or mostly congested inflorescences and small, narrow seeds with very short appendages, is quite complicated. As shown in the molecular study of the evolution within *Luzula* (DRÁBKOVÁ et al. 2003, 2004), spreading and differentiation of taxa in the section *Luzula* must have been fast, with similar phenomena of adaptive radiation under similar conditions in different diversity centres. In each diversity centre of the section, we can find one or more species with this general appearance (e.g., *L. alpina* HOPPE and *L. sudetica* in Europe, *L. stenophylla*, *L. bomiensis* K.F.WU and *L. taiwaniana* SATAKE in Asia, *L. rufa* EDGAR in New Zealand, *L. australasica* STEUD., *L. ovata* EDGAR, *L. alpestris* H.NORDENSK., *L. acutifolia* H.NORDENSK. and *L. atrata* EDGAR in Australia, *L. groenlandica* BÖCHER in Greenland, *L. orestera* SHARSM. in the U.S.A.). In order to evaluate the taxonomy of this group on a reliable basis, chromosome numbers, karyotypes, detailed morphological measurements, ecology and distribution of individual forms must be available (KIRSCHNER et al. 2002).

Luzula stenophylla is most closely related to *L. sudetica* in mountains of Europe and to *L. abchasica* NOVIKOV in the Caucasus. From the latter it differs in densely caespitose growth, congested inflorescence, slightly shorter seed appendage and in lower anther/filament length ratio. *Luzula sudetica* can be distinguished by its shorter style and usually unequal tepals (outer distinctly longer). *Luzula stenophylla* is an agmatoploid with 2n=24 (BL) chromosomes (KIRSCHNER & KŘÍSA 1979) while *L. sudetica* is an agmatoploid with 2n=48 (CL) chromosomes (KIRSCHNER 1993a, b).

Nomenclatural and taxonomic summary

Luzula stenophylla STEUD., *Syn. Pl. Glumac.* 2: 294 (1855). - *Luzula angustifolia* C.KOCH, *Linnaea* 21: 625, (1848), *nom. illeg.*; *Luzula pseudosudetica* V.I.KRECZ. *in* V.L.KOMAROV, *Fl. SSSR* 3: 571 (1935), *nom. illeg.* [Type: 'Auf Matten des pontischen Hochgebirges mit Urgestein-Boden, *C.Koch*; holo: B, destroyed]. - *Luzula multiflora* subsp. *pseudosudetica* V.I.KRECZ., *Žurn. Russk. Bot. Obshch. Akad. Nauk S.S.S.R.* 12: 490 (1928). [Type: [Caucasus, Georgia] Tzichra-Tzicharo, 12 Jul 1888, *[collector illegible]*; lecto: LE, *fide* J.KIRSCHNER, *Taxon* 39: 112 (1990)]. - *Luzula turcica* CHRTEK & KŘÍSA, *Not. Roy. Bot. Gard. Edinburgh* 25: 164 (1964); *Luzula pseudosudetica* var. *turcica* (CHRTEK & KŘÍSA) NOVIKOV, *Novosti Sist. Vyssh. Rast.* 27: 20 (1990). [T: Turkey, Bitlis, Suphan Dag, above Adilcebaz, 13300 ft.; *P.H.Davis 24655 & O.Polunin*; holo: E; iso: K]. - Drawing: A.A.GROSSHEIM, *Fl. Kavkaza* 2(2): plate 10, fig. 3, 3a (1940), as *L. pseudosudetica*.

Perennials, (5–) 12–25 (–35) cm tall, caespitose to loosely caespitose; rhizome short or ascending; stolons absent. Basal leaves flat to canaliculate, c. 3–10 cm long, 1.5–3.0 (–4.0) mm wide. Cauline leaves 2–3, c. 3–8 cm long; margins ciliate, ±sparsely and shallowly papillose serrulate; apex obtuse, swollen. Lower bract narrow, erecto-patent, to c. 2 cm long, shorter or longer than inflorescence. Inflorescence usually wholly contracted in a lobulate head c. 1.0–1.8 × 0.8–1.5 cm, of 3–10 dark clusters; clusters c. 9–15-flowered, ovoid-cylindric, ±sessile (rarely some pedunculate). Bracteoles ovate, scarious, to c. 1 mm long, densely ciliate-fimbriate. Tepals ±equal, narrowly lanceolate, acuminate, c. 2.0–2.7 (–3.0) mm long, dark to blackish brown; margins paler, indistinct. Stamens 6; anthers c. 0.5–0.7 mm long; filaments 0.5–0.7 mm long; style 0.4–0.6 mm long; stigmas 0.8–1.2 mm long. Capsule ovoid–ellipsoid, subacute, shorter than perianth, brown to castaneous–brown; capsule segments 1.6–1.9 (2.0) × 1.2–1.3 (1.5) mm. Seeds ovoid–ellipsoid, ±brown, 0.8–0.9 (–1.1) mm long, (0.5–) 0.6 mm wide; appendage 0.10–0.15 mm long, fibrillate. 2n=24 [24BL], *fide* J.KIRSCHNER & B.KŘÍSA, *Preslia* 51: 334 (1979).

Distribution

The geographical range of *L. stenophylla* known hitherto extends from the north-central and E Anatolia through most of the Caucasus (both the main range and the Little Caucasus) in S. Russia, Georgia, Azerbaijan (the former Soviet Republic) and to Armenia. In the east, it was known to reach mountain in Daghestan (see Kirschner et al. 2002: map 102; A.A.GROSSHEIM, *Fl. Kavkaza* 2(2): map 100 (1940), as *L. pseudosudetica*).

Selected specimens seen:

NORTH CAUCASUS: Teberda, Pervoe Badukskoe Ozero, 13 Jul 1977, *M. Šourková et al. 182* (PRC); Teberda, Teberdinskiy Zapovednik [Teberda Nature Reserve], valley of Baduk R., 1700 m, 13 Jul 1976, *J. Štěpánek s.n.* (PRC); Teberda, Jamagat R., 10 Jul 1977, *J. Kirschner & M. Šourková s.n.* (PRC); Dombai, Mt Mussa-Achitara, 2500-2700 m, 11 Jul 1977, *M. Šourková et al. 13* (PRC); Dombai, between Severnyi Priyut and Kluchorskoe Ozero, 2300–2500 m, 14 Jul 1977, *M. Šourková, J.Kirschner et al. 37, 80* (all PRC); Dombai, Alibek, 2200 m, 12 Jul 1977, *J. Kirschner & M. Mestenhauserová s.n.* (PRC); Teberda, Mt Ulu-Khatipara, 2200 m, *M.Šourková et al. 19* (PRC, PRA), 1600 m, 17 Jul 1976, V. Šťastná 50 (PRC); Kabardino-Balkaria, Tyrnyauz, upper Baksan R., Mt Cheget, 2450–2650 m, 1 Jul 1974, *E.Kopecká & B.Loukota* 99 (PRC); Balkaria, Il'kezi, 2500 m, 25 Jul 1927, *E. Busch & N. Busch s.n.* (K). **SOUTH CAUCASUS**: Georgia, Gergeti, above Gergetski Samel, towards Mt Kazbek, 2450 m, 14 Jul 1986, *P.Pyšek s.n.* (PRA); Georgia, Gudauta, along Awaatkhara R, 1700–2100 m, *V.Vašák s.n.* (PR 340262); Georgia, Kazbegi, village of Gergeti, alpine to subnival sites along the path between the Tsminda Sameba [Holy Trinity] church and the Gergeti Glacier, alt. c. 2954 m. N 42-39-31.9 E 44-34-24.7, 7 Aug 2005, *J. Kirschner & F. Rooks, Exped. Caucas. Georg. 2005: 190* (PRA, TBI); Georgia, Gori, Bakuriani, 1600 m, 17 Jun 1912, Holmberg 1574 (S); Georgia, Patara Kavkasi [the Little Caucasus], Trialetis Kedi [Trialetis Range],

Bordzhomi region: Zkhrats'karo [Cchra-ccharo, Tskhratskaro] Pass, subalpine meadows on W slopes 800-2900 m N of the pass, alt. c. 2400 m. N 41-42-3.2 E 43-31-3.6, 11 Aug 2005, *J. Kirschner & F. Rooks, Exped. Caucas. Georg. 2005: 045* (PRA, TBI). **TURKEY**: Artvin distr., Durna-Giol, c. 2250 m, *G.J.N.Woronow [Herb. Fl. Caucas.] 160* (LE); Gümüşane, Karagöl Dagh, 22 Jul 1894, *P.E.E.Sintenis [It. Orient.] 7334* (BRNM, LD, P, PRC); *P.E.E.Sintenis [It. Orient.] 7335* (BRNM); Gümüşane, Karagöl Dagh, above Artabir, 20 Jul 1894, *P.E.E.Sintenis [It. Orient.] 7333* (BRNM); Amasya, Ak-dagh, 1800 m, 10 Aug 1889, *J. Bornmüller [Pl. Exs. Anatol. Orient.] 1304* (BRNM, PRC); Paphlagonia, Kastambuli, Tossia, Kutschuk Kazdagh [Kastamonu, Tosya], 4 Jun 1892, *P.E.E.Sintenis [It. Orient.] 4080* (BRNM, PRC, P).

Luzula stenophylla in Iran

The junior author visited this region in 2005 and revealed *Luzula stenophylla* in Sabalan Mtns. The species grows in an alpine moist meadow together with [e.g.] *Carex orbicularis, Carex divisa, Trifolium* sp. and Plantago sp.

Even more remarkable is the occurrence of *Luzula stenophylla* in the Elburz range, Mazandaran Province, which considerably extends the geographical range of this species eastwards.

The new localities

Iran, Azerbaijan, Ardabil Province, Sabalan Mtns: Meshkin Shahr, Ghotour Soui, Shabil. Alt. 2650-2800 m, 21 Jul 2005, *M. Amini Rad s.n.* (IRAN 50832, PRA).

Iran, Mazandaran Province: c. 40 km S of Ramsar, N slope of Mt. Khash-e Chal, 2900-3600 m, 11 Jul 1984, *M. Assadi & A. A. Maasoumi* (TARI 51199), see Fig. 1.

Concluding remark

With a more detailed botanical exploration of NW Iran, new remarkable species are revealed in the region of the Iranian Azerbaijan. The region is likely to harbour a higher number of Caucasian species. Especially taxonomically critical genera are promising in this respect. One of the examples is *Juncus alpigenus*, missing from *Flora Iranica* (SNOGERUP 1971, see KIRSCHNER et al. 2006; first listed in TAHERI 1993). Another case of an eastern limit of the Caucasian element is the occurrence of *Luzula spicata* (L.) DC. subsp. *italica* (PARL.) ARCANG. (a form close to what was described as *L. stilbocarpa* KIRSCHNER & KŘÍSA 1979) in the same region (see also KIRSCHNER et al. 2002: 67). It also occurs in the Sabalan Mts.: Kuh-i-Sabalan Exped. 1961, 38º10'N 47º40'E, dry, stony part of the north face, 21 Aug 1961, *G. N. Harrington 219* (K).

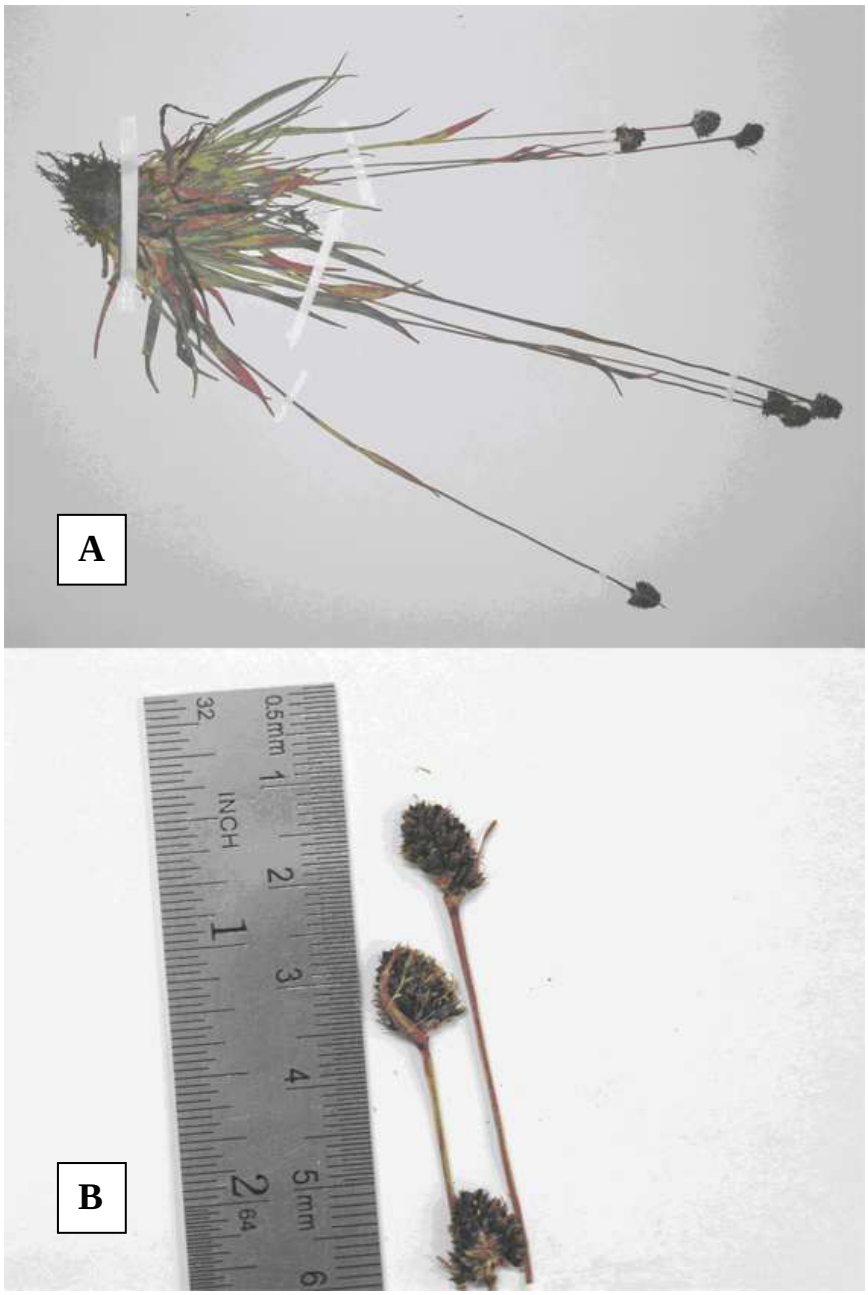

Fig. 1. *Luzula stenophylla* Steud. Iran, Mazandaran Province, TARI 51199. a, general habit; b, detail of inflorescence nder.

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